

AMENDMENTS TO THE SPECIFICATION

Please amend paragraph [0002] as follows:

~~Researches have been developed~~Research has been performed on a system to achieve the improvement of the economical efficiency of a whole recycling system in which uranium and plutonium are recovered by utilizing a molten salt electrolytic technique as a reprocessing technique for recycling of spent nuclear fuels used in nuclear reactors. The molten salt electrolytic technique is expected to be high in economical efficiency.

Please amend paragraph [0005] as follows:

As described above, in the conventional technique, ~~there is adopted a constitution is~~adopted such that the crucible containing the substance to be treated doubles as the anode, the cathode is installed in the molten salt, and electrolysis is carried out between the anode (the crucible) and the cathode. Alternatively, there is another constitution such that the anode and cathode are installed in the crucible and electrolysis is carried out therebetween.

Please amend paragraph [0006] as follows:

However, such a conventional technique as described above has suffered from the following problems to be solved. When the crucible doubles as the anode, in the steps other than the simultaneous electrolytic step, the distance between the anode and the cathode is uniformly maintained to be uniform and hence the current density is uniform, so that the ununiform distribution of the electrodeposit ~~can hardly take~~takes place; on the contrary, in the simultaneous electrolytic step, the spent nuclear fuel placed in the bottom of the crucible functions as the anode, so that the distance between the electrodes is not maintained constant. Consequently, the current density distribution on the surface of the cathode becomes ununiform, resulting in the ununiform distribution of the electrodeposit. Further, the distance between the lower end of the cathode and the surface of the spent nuclear fuel becomes shorter, the current density around the lower end of the cathode is thereby increased and accordingly the electrodeposit is concentrated around the lower end of the cathode, so that when stirring is not sufficiently conducted, the ions

in the bulk region ~~comes to be~~become insufficient and the processing speed is degraded.

Please amend paragraph [0007] as follows:

Additionally, because the environment involved is highly corrosive owing to the use of chlorine gas, ~~there is used a material prepared by coating (with vapor deposition) graphite blank with pyrographite excellent in corrosion resistance~~ is used as the material for the crucible doubling as the anode. However, because of the operation condition, such as high temperature molten salt and chlorine gas conditions, the operation life time of the crucible is in the order of 1,000 hours. Consequently, the crucible ~~need~~needs to be replaced at frequent intervals, leading to the decreasing of the processing speed.

Please amend paragraph [0008] as follows:

Furthermore, it is conceivable that the electrolytic apparatus ~~is~~can be made larger in size as a measure for improving the processing speed. However, ~~it is difficult to make a~~the crucible made of pyrographite ~~can hardly be made larger in size because of~~from the viewpoint of product fabrication.

Please amend paragraph [0009] as follows:

Even when the constitution is such that the anode and cathode are installed in the crucible, the distance between the electrodes are not uniform, and hence the current density distribution on the cathode surface ~~comes to be~~becomes ununiform, and the ununiform distribution of the electrodeposit takes place.

Please replace the heading “Disclosure of the Invention,” with --Summary of the Invention-- in line 9 on page 6 of the specification.

Please amend paragraph [0016] as follows:

A typical example of the parallel pair of electrodes is a constitution of alternately arranged electrodes in which the anodes and cathodes are alternately arranged. As for these

arrangements, ~~preferable is a constitution is preferable~~ wherein the rod-shaped cathodes are supported rotatably and a rotation driving mechanism is additionally installed, and the cathodes are continuously rotated during electrolytic operation.

Please replace the heading “Best Mode for Carrying Out the Invention,” with -- Detailed Description of the Invention-- in line 1 on page 10 of the specification.

Please amend paragraph [0023] as follows:

In this electrolytic apparatus, it is necessary to exactly maintain the crucible dimension so as to prevent the criticality, and hence the corrosion resistance equal to or higher than the corrosion resistance of the crucible made of pyrographite is required. Accordingly, the corrosion resistance of the crucible material is improved by adopting such a cold crucible type high frequency induction heating method as described above, and a metallic material excellent in fabricability is adopted for the crucible material for the purpose of improving the processing speed through making the apparatus larger in size. For example, the most suitable metallic material is Hastelloy-C (trade name) which is a nickel based superalloy.

Please amend paragraph [0036] as follows:

In this test apparatus, the cathode 64 and the anode 66 are arranged side by side, and hence the distance between the cathode and the anode varies depending on the particular portions on the surfaces thereof; thus, the current density on the cathode surface tends to be concentrated on the side of the cathode facing to the anode. Under the condition such that the cathode is not being rotated, the current density on the side of the cathode facing to the anode is increased, and accordingly the electrodeposit is concentrated and deposited thicker on the side of the cathode facing to the anode. On the contrary, when the cathode is being rotated, the instantaneous distances between the respective portions of the cathode surface and the anode are different, but an apparent average distance therebetween is identical for any portion of the cathode surface. Accordingly, the current density on the cathode surface becomes uniform, and the thickness of the electrodeposit is thereby made uniform. As can be seen from FIG. 7, the effect of preventing

the ununiform distribution of the electrodeposit due to the rotation of the cathode has been confirmed. Incidentally, in the case "with cathode rotation" in FIG. 7, the cathode ~~was being~~is rotated at 60 rpm during electrolytic operation.

Please cancel the heading "Industrial Applicability," in line 8 on page 20 of the specification.